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GEOGRAPHICAL PUBLICATIONS

(Reviews and Titles of Books, Papers, and Maps)

For key to classification see "Explanatory Note" in Vol. II, pp. 77-81

NORTH AMERICA

ALASKA

EAKIN, H. M. **The Cosna-Nowitna region, Alaska.** With preface by Alfred H. Brooks. 54 pp.; maps, diagr., ills., index. *U. S. Geol. Survey Bull. 667.* Washington, D. C., 1918.

SMITH, PHILIP S. **The Lake Clark-Central Kuskokwim region, Alaska.** With preface by Alfred H. Brooks. 162 pp.; maps, diagr., ills., index. *U. S. Geol. Survey Bull. 655.* Washington, D. C., 1917.

These reports cover large areas of which very little was known previously; hence more attention than usual is paid to geographic description. Both areas lie in the Alaskan central plateau region and both include portions of the basin of the Kuskokwim, the second great river of Alaska. During Russian occupation a trading post was established on the river at about the 158th meridian, but beyond that point little was known until 1898 when the U. S. Geological Survey carried out an exploration confined practically to the main stream. The reconnaissance work by Smith in 1914 extends southward from the main river to Lake Clark and thus across into the Bristol Bay drainage area, covering an area of 4,800 square miles. The area covered by Eakin, 2,600 square miles, extends from the Yukon southward to include the north fork of the Kuskokwim. Both areas are regions of moderate relief: in the Cosna-Nowitna section the proportions of upland (the elevation of which seldom exceeds 2,000 feet) and lowland are about equal; in the more elevated Lake Clark-Kuskokwim section the proportion of highland is about twice as great as the lowland. Numerous navigable streams make both areas fairly accessible during the summer time. The Kuskokwim at that part of its course touched by the expedition is half a mile wide and deep enough for navigation by river steamers. The climate of interior Alaska is subarctic—the summer is short, warm, and fairly wet; the winter long, cold, and comparatively dry. The annual precipitation probably does not exceed 20 inches. The summer of 1914 would appear to have been unusually cold and rainy in the more southern region—precipitation was recorded on 60 days out of 90, and snow fell in July. The climate of the Cosna-Nowitna region is similar to that of Fairbanks; this fact, in combination with a large proportion of well-drained, loamy soils, suggests that this may be one of most favorable areas for agriculture in interior Alaska. The timber line is at an elevation of about 2,000 feet. Most of the Cosna-Nowitna region is forested; on this expedition the scarcity of grass proved an inconvenience for pack animals. The Lake Clark-Kuskokwim region is not so well forested, the proportion of timbered to untimbered land being about 1 to 2. The larger game does not appear to be as abundant here as in the more northerly region. Population is everywhere scanty. Not more than 100 people for the 5,000 square miles surveyed is the estimate for the Lake Clark-Kuskokwim section, and the Cosna-Nowitna section is described as practically uninhabited during the summer; certain native settlements here, however, appear to have been decimated by measles and other diseases. There is little positive information available as to the mineral resources of either region.

GORDON, G. B. **In the Alaskan wilderness.** 247 pp.; maps, ills. John C. Winston Co., Philadelphia, 1917. 9 x 6.

The regions described in *U. S. Geological Survey Bulletins 655 and 667* (reviewed above) are connected by this account by G. B. Gordon of his expedition undertaken in 1907 for the University Museum of Philadelphia. The author traveled down the Yukon to Tanana, up the Tanana River to Fairbanks, returning via Lake Minchumina, west of Mt. McKinley (Denali), and down the north fork of the Kuskokwim. Naturally the accounts of the natives form the most interesting part of the book. Scantiness of population in the great interior is emphasized. "The central basin, drained by two great river systems, consists of timber land and swamps flanked by hills and mountain ranges, with abundance of game but almost without human inhabitants. Never at any time has the population of that district been very numerous in comparison with its size and resources, and during the last half-century it has dwindled until there is hardly even a remnant left.''

On the Kuskokwim River Indian (Tinneh) and Eskimo (Innuit) have met and fought and to some extent have mingled. Especially noteworthy were the Indians of Sikmiut, near the beginning of the lower, or Eskimo, part of the river. They showed three distinct physical types—one Indian in feature and stature, a second distinctly Eskimo, and a third of intermediate character. The language was Innuit, and many cultural features showed a blending of the races.

Brooks, A. H. **Mountain exploration in Alaska.** 22 pp.; maps, ills. *Alpina Americana No. 3.* American Alpine Club, Philadelphia, 1914.

Dall, W. H. **Reminiscences of Alaskan volcanoes.** Ills. *Scientific Monthly,* Vol. 7, 1918, No. 1, pp. 80-90.

Golder, F. A. **Mining in Alaska before 1867.** *Washington Hist. Quart.,* Vol. 7, 1916, No. 3, pp. 233-238. Seattle.

Griggs, R. F. **The eruption of Katmai.** Ills. *Nature,* No. 2547, Vol. 101, 1918, August 22, pp. 497-499.

Griggs, R. F. **The Valley of Ten Thousand Smokes.** Maps, diagr., ills. *Natl. Geogr. Mag.,* Vol. 31, 1917, No. 1, pp. 12-68; Vol. 33, 1918, No. 2, pp. 115-169. [Reports on field work in 1915 and 1916 for the National Geographic Society in the vicinity of Mount Katmai, Alaska. It will be remembered that Katmai was in eruption in June, 1912, in one of the most gigantic volcanic outbursts ever recorded. It is estimated that five cubic miles of ash and pumice were thrown into the air. The dust of the eruption was probably distributed world-wide, though it is not scientific to say, without qualification, that it was responsible for the cold wet summer of 1912! The reports are chiefly narrative and descriptive and are accompanied by exceptionally good photographs.]

Moffit, F. H. **The upper Chitina valley, Alaska.** With a description of the igneous rocks by R. M. Overbeck. 82 pp.; maps, diagrs., ills., index. *U. S. Geol. Survey Bull. 675.* Washington, D. C., 1918. [The Chitina Rover has its source in the high mountains near the international boundary north of Mt. St. Elias.]

—— ***Juneau and vicinity, Alaska.*** Surveyed in 1914-16. 1:24,000. U. S. Geol. Survey, Washington, D. C., 1918.

—— ***Southeast Alaska: Steamer Bay,*** 1:20,000, [*and*] ***Wrangell Harbor and Highfield Anchorage,*** 1:10,000. *U. S. Coast & Geodetic Survey Chart No. 8164.* Washington, D. C., Oct., 1918.

—— [***Topographic map of Alaska.***] Sheet: ***Lower Matanuska Valley (602A).*** Surveyed in 1909 and 1913. 1:62,500. U. S. Geol. Survey, Washington, 1918. [The use on this map of gray contours for unsurveyed areas to distinguish them from the surveyed areas, shown in the usual brown contours, is an innovation.]

United States

Western States

Bradley, W. W. **California mineral production for 1917.** 179 pp.; maps, diagrs., ills., index. *California State Mining Bur. Bull. No. 83.* Sacramento, 1918. [The county maps show railroads, highways, electric power lines, and altitudes, the last expressed in figures.]

Collier, A. J. **Geology of northeastern Montana.** Pp. 17-39. Maps, diagrs., ills. *U. S. Geol. Survey Professional Paper 120-B.* Washington, D. C., 1918.

Colton, H. S. **The geography of certain ruins near the San Francisco Mountains, Arizona.** Maps, diagrs., ills., bibliogr. *Bull. Geogr. Soc. of Philadelphia,* Vol. 16, 1918, No. 2, pp. 37-60.

Colton, M. R. F., and H. S. Colton. **The little-known small house ruins in the Coconino forest.** Pp. 101-126; maps, diagrs., ills., bibliogr. *Memoirs Amer. Anthropol. Assoc.,* Vol. 5, 1918, No. 4. Lancaster, Pa. [''Result of a survey . . . . . in a limited area east of Flagstaff, Arizona.'']

Dawson, T. F. **The Grand Canyon: An article giving the credit of first traversing the Grand Canyon of the Colorado to James White, a Colorado gold prospector, who it is claimed made the voyage two years previous to the expedition under the direction of Maj. J. W. Powell, in 1869.** 67 pp.; ill. *Senate Doc. No. 42, 65th Congr., 1st Sess.,* Washington, D. C., 1917.

ELROD, M. J. **Some lakes of Glacier National Park.** 29 pp.; map, ills. Department of the Interior, Washington, D. C., 1912. 9 x 6.

FEWKES, J. W. **A prehistoric Mesa Verde pueblo and its people.** Map, diagrs., ills. *Ann. Rept. Smithsonian Inst. for 1916*, pp. 461-488. Washington, D. C., 1917.

FISHER, L. C. **Snowfall on Mount Rainier, Wash.** Diagr., ills. *Monthly Weather Rev.*, Vol. 46, 1918, No. 7, pp. 327-330. Washington, D. C.

GREAVES, J. E., AND C. T. HIRST. **Composition of the irrigation waters of Utah.** 43 pp.; diagrs. *Utah Agric. College Exper. Sta. Bull. No. 163.* Logan, 1918.

HALLENBECK, CLEVE. **Summer types of rainfall in upper Pecos Valley.** Maps, diagrs. *Monthly Weather Rev.*, Vol. 45, 1917, No. 5, pp. 209-216. Washington, D. C. [A series of curves shows the relative amounts of rainfall and the relative hourly frequency of precipitation at Roswell, New Mex., from the different types of rainstorms. This is a distinct contribution to the more detailed study of our rainfall from the human point of view. For man's activities, and his crops, are to a large extent affected not only by the annual and monthly rainfall amounts but also by the character of the rains. The weather-map conditions of different rainfall types at Roswell are described, and the distribution of the rainfall in two typical storms is charted.—R. DEC. W.]

KEYES, C. R. **Lacustral record of past climates.** *Monthly Weather Rev.*, Vol. 46, 1918, No. 6, pp. 277-280. Washington, D. C. [The author holds that the desert lakes do not record climatic fluctuations; that they are due rather to widely different but purely physiographic causes. Compare his note in the *Geogr. Rev.*, Vol. 5, 1918, pp. 326-327.]

LANDES, HENRY. **A geographic dictionary of Washington.** 346 pp.; maps, diagr. *Washington Geol. Survey Bull. No. 17.* Olympia, 1917. [Includes a section containing general information, a gazetteer of 246 pages, and a table of altitudes. ''General Information'' contains a specially useful section on climate with comprehensive tables, one giving frost data and length of the growing season. A list of official reference maps is also included.]

LEE, W. T. **The geologic story of the Rocky Mountain National Park, Colorado.** 89 pp.; maps, diagrs., ills., index. Dept. of the Interior, Washington, D. C., 1917. 9 x 6. [A good example of the excellent work being done by the National Park Service to make known the country's great recreation grounds.]

LYMAN, W. D. **The Columbia River: Its history, its myths, its scenery, its commerce.** 3d edit. xxi and 418 pp.; maps, ills., index. G. P. Putnam's Sons, New York and London, 1918. $2.50. 8 x 5½. [The first edition, 1909, was reviewed in the *Bull. Amer. Geogr. Soc.*, Vol. 41, 1909, pp. 639-640.]

MERRIAM, J. C. **Evidence of mammalian palaeontology relating to the age of Lake Lahontan.** *Univ. of California Publs. in Geol.*, Vol. 10, 1918, No. 25, pp. 517-521.

MILLIS, H. A. **The Japanese problem in the United States: An investigation for the Commission on Relations with Japan appointed by the Federal Council of the Churches of Christ in America.** xxi and 334 pp.; ills. Macmillan Co., New York, 1915. $1.50. 7½ x 5½.

MURPHY, R. C. **Natural history observations from the Mexican portion of the Colorado Desert.** Map, ills. From *Abstract of Proc. Linnaean Soc. of New York*, No. 24-25, 1917, pp. 43-101.

—— **National Parks, General information regarding, season of 1918:** (1) **Yellowstone National Park,** 84 pp.; maps, diagrs., bibliogr.; (2) **Mesa Verde National Park,** 55 pp.; maps, ills., bibliogr.; (3) **Yosemite National Park,** 47 pp.; maps, ill., bibliogr.; (4) **Sequoia and General Grant National Parks,** 45 pp.; maps, bibliogr.; (5) **Wind Cave National Park,** 23 pp.; maps, diagr., bibliogr.; (6) **Glacier National Park,** 76 pp.; maps, diagrs., bibliogr.; (7) **Rocky Mountain National Park,** 33 pp.; maps, bibliogr.; (8) **Crater Lake National Park,** 23 pp.; maps, diagr., bibliogr.; (9) **Mount Rainier National Park,** 43 pp.; maps, diagr., ill., bibliogr. Dept. of the Interior, Washington, D. C., 1918.

RAMALEY, FRANCIS. **Notes on dune vegetation at San Francisco, California.** Ills. *Plant World*, Vol. 21, 1918, No. 8, pp. 191-201. Tucson, Ariz.

RIXFORD, G. P. **Smyrna fig culture.** 48 pp.; ills., bibliogr. *U. S. Dept. of Agric. Bull. No. 732* (Contribution from the Bureau of Plant Industry). Washington, D. C., 1918. [The author forecasts that within a few years the dry, warm, comparatively frost-less regions in the southwestern United States will supply the American market with this commodity.]

ROBBINS, W. W. **Native vegetation and climate of Colorado in their relation to agriculture.** 56 pp.; maps, diagrs., ills. *Agric. Exper. Sta. Bull. No. 224.* Fort Collins, Col., 1917.

ROBERTS, MILNOR. **The College of Mines series of ores, coals, and useful rocks of Washington, with manufactured mineral products of the state.** 97 pp.; ills., bibliogr., index. *Bull. Univ. of Washington, Univ. Extension Ser. No. 21 (Gen. Ser. No. 110).* Seattle, 1917.

SHANTZ, H. L. **Plant succession on abandoned roads in eastern Colorado.** Diagrs., ills. *Journ. of Ecol.,* Vol. 5, 1917, No. 1, pp. 19-42. London.

SHREVE, FORREST. **The establishment of desert perennials.** *Journ. of Ecol.,* Vol. 5, 1917, No. 3-4, pp. 210-216. London.

SUDWORTH, G. B. **Miscellaneous conifers of the Rocky Mountain region.** 45 pp.; maps, ills. *U. S. Dept. of Agric. Bull. No. 680* (Contribution from the Forest Service). Washington, D. C., 1918.

—— ***Idaho, State of.*** 1:500,000. U. S. Geol. Survey, Washington, D. C., 1913. [One of the important series of outline base maps being published by the Survey. Cf. *Bull. Amer. Geogr. Soc.,* Vol. 46, 1914, pp. 713-714.]

—— ***Juan de Fuca, Strait of, Approaches to: Destruction Island to Amphitrite Point.*** [1:175,000.] *U. S. Coast & Geodetic Survey Chart No. 6102.* Washington, D. C., September, 1918.

—— [***Topographic map of the United States.***] Sheets: (1) ***Bliss Ranch,*** (2) ***Denverton,*** (3) ***Honker Bay,*** (4) ***Powell Slough,*** (5) ***Snelling,*** (6) ***Turner Ranch, Cal.,*** 1:31,680; (7) ***Point Reyes,*** (8) ***Point Sur, Cal.,*** 1:62,500; (9) ***Preston, Idaho-Utah,*** 1:125,000; (10) ***Big Hatchet Peak,*** (11) ***Cienega Springs,*** (12) ***Columbus,*** (13) ***Hachita,*** (14) ***Hermanas,*** (15) ***Walnut Wells,*** (16) ***Victorio, N. M.,*** 1:62,500; (17) ***Pelona, N. M.,*** 1:125,000; (18) ***Porcupine Valley, Mont.,*** 1:62,500; (19) ***Kerby, Ore.,*** 1:125,000; (20) ***Troutdale, Ore.,*** 1:62,500; (21) ***Port Angeles, Wash.,*** 1:62,500; (22) ***Como Ridge, Wyo.,*** 1:62,500. U. S. Geol. Survey, Washington, D. C., 1918. [On the Point Reyes, Point Sur, Cal., sheets and Port Angeles, Wash., sheet an innovation is made in the differentiation of wooded areas as (1) woods, (2) woods and brush, and (3) brush.]

SOUTH AMERICA

ECUADOR, PERU, BOLIVIA

BERRY, E. W. **Fossil plants from Bolivia and their bearing upon the age of uplift of the eastern Andes.** Map, ills. *Proc. U. S. Natl. Museum,* Vol. 54, 1917, pp. 103-164.

The remarkable facts discussed in this paper should be called to the attention of all geologists and geographers. They indicate that in Bolivia the great ranges of the Andes have been elevated from low altitudes since some time in the Pliocene. Tertiary deposits on the high eastern ranges are found by Berry from the evidence of the flora to be no older than this epoch. These beds now lie from 13,000 to 15,000 feet above the sea in a cold and arid intermontane basin, but the fossil plants which they contain resemble those still living in the Amazonian forest and grew in a warm, humid climate at a low elevation.

The material was collected by Singewald and B. L. Miller in 1915. Their most remarkable discovery, however, was that of a new species of brachiopod in the same series of beds near Potosí. Schuchert assigns to these marine shells a late Tertiary age, either Miocene or Pliocene. This evidence goes beyond even that of the plants in showing that at a time indicated by the plant fossils as not earlier than Pliocene this part of the Cordillera Real was not only low but was actually at and below sea level. In an article still in press at the time Berry further states:

"The geological history of Panama, Peru, Chile, Patagonia, and Graham Land shows widespread submergence in the Pliocene (corresponding to the Bolivia occurrences), namely the Toro limestone in Panama, the Paita stage in Peru, the Coquimbo and Caldera beds in Chile, the Paraná beds in Patagonia, and the so-called Pecten beds of Graham Land. This obviously fits nicely with the Pliocene age of the Potosí beds, and I may say that there is no subjective element in the age determinations of these other Pliocene marine beds in South America since I have not altered their age determination but have taken the latest results of Vaughan, Steinmann, Gunnar-Andersson, etc., for the different regions.''

Let us see how this fossil evidence connects with the physiographic history. Before the last glaciation a period of deep canyon cutting resulted from an uplift which Bowman places as at least 5,000 feet (Isaiah Bowman: The Andes of Southern Peru, New York, 1916, Ch. 11). Previous to this a cycle of erosion, consequent upon earlier uplift, had reached maturity, giving rise to wide, open valleys and long, gentle, waste-clad slopes. Miller and Singewald do not fix the age of the plant and brachiopod beds with respect to these physiographic cycles, but the deposits presumably belong to the Tertiary beds which are known to be older than the mature erosion surfaces described by Bowman. This would mark the mature cycle of erosion as both beginning and reaching its maturity in the Pliocene and the stage of canyon cutting as early and middle Pleistocene.

Such a conclusion, if it be substantiated, tends not only to increase our appreciation of the geological recency and magnitude of great orogenic movements in various other parts of the globe, as well as in the Andes, but is in harmony with a conception of a greater absolute duration of the Pliocene and Pleistocene periods. There has been a growth of geological opinion in this direction for a generation. The Pleistocene was formerly assigned a length of the order of 100,000 years. Now geologists are not startled at a length of 1,000,000 or even 1,500,000 years. But the progress of erosion and of faunal change in the Pliocene implies that it was far longer than the Pleistocene. Physiography and paleontology meet in a striking manner in the history of the Andes, but this dovetailing of the two records clearly needs further study. The fixing of the age of the Tertiary beds by Berry is a most important beginning. Paleontology needs to limit the epochs within which physiographic work must be fitted.

JOSEPH BARRELL

LISSON, C. I. **Ensayo teórico sobre el levantamiento de los Andes Peruanos, y estudio de algunas observaciones geológicas que le son anexas.** (Excursión Universitaria del año 1917.) 36 pp.; map, diagrs., ills. E. R. Villarián, Lima, 1918. 9½ x 6.

LURQUIN, CONSTANT. **Meteorología boliviana.** *Proc. 2nd Pan Amer. Sci. Congr., Dec. 27, 1915, to Jan. 8, 1916,* Vol. 2, Section 2: Astronomy, Meteorology, and Seismology, pp. 704-715. Washington, D. C., 1917.

MANRIQUE, FRANCISCO. **Notas sobre vías de comunicación en la República del Ecuador.** *Proc. 2nd Pan Amer. Sci. Congr., Dec. 27, 1915, to Jan. 8, 1916,* Vol. 6, Section 5: Engineering, pp. 42-47. Washington, D. C., 1917.

MEANS, P. A. **A survey of ancient Peruvian art.** Map, ills., bibliogr. *Trans. Connecticut Acad. of Arts and Sci.,* Vol. 21, 1917, pp. 315-442. New Haven. [A scholarly summary of the various ''cultures'' of Peru, concluding with a section on the chronology and dates in early Peruvian art in terms of the dynasties of the ancient rulers. There are a valuable bibliography and a selected list of illustrations.]

EUROPE

BRITISH ISLES

MILL, H. R., AND CARLE SALTER. **On the distribution of rain in space and time over the British Isles during the year 1917 as recorded by more than 5,000 observers in Great Britain and Ireland, and discussed with articles upon various branches of rainfall work.** 240 pp.; maps, diagrs. *British Rainfall,* Vol. 57, 1917. Edward Stanford, Ltd., London, 1918. 8½ x 6.

British Rainfall has now reached its 57th annual issue. It represents an extraordinary achievement in meteorological work—the result of the lifelong labors of the late George J. Symons and, since his death, of the active and most efficient efforts of Dr. H. R. Mill. The volume represents the annual output of that unique and remarkable body of observers known as the British Rainfall Organization, supported by voluntary contributions; enlisting, at present, the willing service of more than 5,000 observers; whose Director is the recognized authority on all matters pertaining to the rainfall of the British Isles.

The present volume was prepared under the unprecedented difficulties of a ''war year''—difficulties of printing and engraving and, inevitably, difficulties arising from the absence, on war service, of several of the most experienced members of the Staff of the Organization. In spite of the war, however, the decrease in number of rainfall records received for publication was less than in 1916. In all, 5,085 complete records appear in the volume. The death, in the war, of Donald S. Salter, who had for several years been in charge of the cartographical work, is referred to by the Director in feeling terms. The valuable services of Mr. Carle Salter have obtained for him the recognition which he well merited. He has been appointed Joint-Director, with Dr. Mill, of the British Rainfall Organization, Dr. Mill "continuing to be responsible personally for the finances." In connection with this last matter it is fair to say that Dr. Mill had to meet, in 1917, a deficit of £90, and we cordially agree with him in believing that "it is not right that a work of national importance, after nearly sixty years of increasing activity, should be in such a state."

British Rainfall is much more than a compilation and tabulation of "dry" rainfall data. It always contains articles on topics of special interest. This year there is a discussion of two daily rainfalls of unprecedented amount. One of these, on June 28, 1917, gave the greatest fall on one day ever observed in any part of the British Isles. The amount was 9.56 inches. The article dealing with this subject is illustrated by a colored folding map (10 miles to the inch). There are also special articles on the snowfall of 1917, by Mr. L. C. W. Bonacina, and on the Diminution of Rainfall with Elevation, by Mr. W. C. Nash.

It is fitting to note that the Symons Memorial Medal for 1918 was awarded by the Royal Meteorological Society to the Director of the British Rainfall Organization, "in recognition of services to meteorological science which were only rendered possible by the unfailing devotion of the permanent staff and the persevering co-operation of generation after generation of voluntary observers." R. DeC. Ward

Adamson, R. S. **On the relationships of some [plant] associations of the southern Pennines.** Diagrs. *Journ. of Ecol.*, Vol. 6, 1918, No. 2, pp. 97-109. London.

Bilham, E. G. **On the variation of underground water-level near a tidal river.** Map, diagrs. *Quart. Journ. Royal Meteorol. Soc.*, No. 187, Vol. 44, 1918, pp. 171-189 (discussion, pp. 186-189). London. [Observations made at Kew Observatory.]

Bilham, E. G. **The diurnal variation of atmospheric pressure at Benson, Oxon., during the year 1915.** Diagrs. *Quart. Journ. Royal Meteorol. Soc.*, No. 183, Vol. 43, 1917, pp. 269-281 (discussion, pp. 279-281). London.

Bonacina, L. C. W. **Inverse weather phenomena.** *Symons's Meteorol. Mag.*, No. 627, Vol. 53, 1918, April, pp. 30-32; No. 628, May, pp. 37-40; No. 629, June, pp. 51-52. London. [Refers only to the climate of the British Isles.]

Bonthron, P. **My holidays on inland waterways: 2,000 miles cruising by motor boat and pleasure skiff on the canals and rivers of Great Britain.** xvii and 186 pp.; map, ills. Thomas Murby & Co., London, 1918(?). 8½ x 5½.

Bryant, W. W. **Abnormal temperature, with special reference to the daily maximum air temperature at Greenwich.** *Quart. Journ. Royal Meteorol. Soc.*, No. 185, Vol. 44, 1918, pp. 23-30 (discussion, pp. 29-30). London. [Definition of the usage of the term "abnormal."]

Cadell, H. M. **Industrial possibilities of the Forth Estuary.** Map, diagr., ill. *Scottish Geogr. Mag.*, Vol. 34, 1918, No. 5, pp. 177-189; No. 6, pp. 201-216.

Clark, J. E., and H. B. Adames. **Report on the phenological observations in the British Islands from December 1914 to November 1915.** Diagr., ill. *Quart. Journ. Royal Meteorol. Soc.*, No. 180, Vol. 42, 1916, pp. 233-265. London. [With an addendum, "Report of the Yield of Farm Crops," by R. H. Hooker, pp. 262-264; and discussion, pp. 264-265.]

Clark, J. E., and H. B. Adames. **Report on the phenological observations in the British Islands, from December 1915 to November 1916.** Map, diagr. *Quart. Journ. Royal Meteorol. Soc.*, No. 183, Vol. 43, 1917, pp. 285-316 (discussion, pp. 314-316).

AFRICA

Sahara, including Egypt

—— **Annual Report, 1915-1916, of the Ministry of Public Works, Egypt.** ix and 87 pp.; map, diagrs., ills. Government Press, Cairo, 1917. 15 piasters. 11 x 7½.

The British engineers, with the characteristics of their countrymen, have done and are doing some of their best work under adverse circumstances. The world war brought about not only in military operations, but in civil affairs as well, a high development of skill and efficiency. Notably is this the case in Egypt, where, under the stress of war conditions, the engineers were called upon to cut down expenditures for construction and maintenance of irrigation works and at the same time to increase the area of land and to secure larger crop production. That this was achieved is shown by the somewhat meager annual report of the Ministry of Public Works which under the controlling staff largely of English engineers continued to modify the geography of the country, extending the cultivated area not only within Lower Egypt but in the hitherto little cultivated Dongola division, south of Egypt proper and lying within the Anglo-Egyptian Sudan; also still further south in the Gezira between the White and Blue Niles above Khartum, where, leading from the Blue Nile at Sennar, a new irrigation scheme has been entered upon.

The great problem is not only that of bringing under cultivation more land to supply the needs of the growing population, but also that of providing more summer water for Egypt proper, where, under the conditions resulting from a stable government, the population has rapidly grown from 7,000,000 to 13,000,000 within the present generation.

Unlike the rivers which furnish water for the arid lands of the United States, the Nile is in flood not during the spring and early summer months, but later in the year. Thus, to maintain crop production during the otherwise favorable season of April-July, it is essential to provide water artificially by what are known as perennial canals. In the old days before the construction of such works the lands either lay desolate until the time of the floods which culminated in September, or such lands as were cultivated must be furnished with a supply lifted by hand, or in some cases by animal power or machines, from the low-lying surface of the great river. Furthermore, if, as occasionally happened, the Nile did not rise to its full normal height and did not fill the flood canals and basins, crop losses ensued and famine spread throughout the land.

All of this has been changed by the works perfected and built by the British, the most striking of which is the Assuan Dam with its reservoir holding back the clear water of the annual floods. Below this are other dams across the river built not for storage but to raise the low level of the Nile to such a height that, although the total supply may be less than usual, the water can be taken out into the high-lying canals and carried to the basins. The most important of these dams are, first, below the Assuan Dam, what is known as the Esna Barrage at the head of the most southerly canal system of Upper Egypt and, next, the Assiut Barrage at the head of the canals covering the country farther north or down stream. Then, at the head of the delta where the Nile divides into its two great branches, are located what are known as the Delta Barrages, whose history has been full of interest to engineers because of the many vicissitudes surrounding their construction, partial abandonment, and final successful rebuilding under British control.

There has been a gradual transformation of methods from the prehistoric one of annually flooding the basins to the perennial irrigation of the present time. This change, while of benefit, has given rise to many difficult problems arising from waterlogged soil, the growth of swamps, and the accumulation of alkali. Drains must be installed to meet these conditions, and a nice balance must be established between the demands for water and the necessity of limiting the supply and of rapidly taking away any excess.

The report for the years 1915-16 shows that, although some of the larger projects have been relegated to the future, yet with diminished expenditures it has been possible to carry on much of the work and maintain the growth of the country, particularly in supplying the summer water needed by cotton and rice and for the sowing of maize.

There was in 1915 an unusual extension of cultivation. Cotton planting, however, was restricted, and the water which would have been used for this purpose permitted the planting of 100,000 acres more of rice than was grown in other years. This, at a minimum value of $50 per acre, represented a value of over $5,000,000. The production of more food is not wholly a matter of water supply; there are involved in it here, as in other countries, the far-reaching and difficult questions of population. While it is necessary to have good soil and an adequate supply of water, yet, unless cultivators are willing to utilize these advantages, the investment may be a failure.

The *fellahin* have for unknown ages herded in cramped villages built on artificial mounds above the reach of the inundations; there are no houses scattered through the cultivated fields, as is the case in Europe and America. One of the changes which is being brought about on the newly cultivated areas is the gradual modification, as far as practicable, of these peasants' methods of life by getting them nearer the cultivated lands and under more sanitary conditions than exist in the crowded disease-breeding ancient towns. This report touches on some of these problems and, while optimistic in spirit, shows that the problems are by no means simple but require for their successful solution skill and experience not merely in handling earth, stone, and iron but also in controlling the less tangible forces of widespread human customs and practices.

F. H. NEWELL

ASIA

RUSSIAN CENTRAL ASIA

GRAHAM, STEPHEN. **Through Russian Central Asia.** xii and 298 pp.; map, ills., index. The Macmillan Co., New York, 1916. $2.25. 8½ x 6.

Written in Mr. Graham's best manner but different from his other tramping books. This was his boldest venture, and perhaps few men would care to emulate it. He went by rail from the Caspian Sea to Bokhara, Samarkand, and Tashkent, a little beyond which place he reached the railhead. Then began his long and weary walk through the Land of the Seven Rivers (draining into Lake Balkash from the south) to which thousands of Russian peasants had brought the farming and grazing industries of their old homes. He pushed eastward for months among the Kirghiz and the scattered Russian settlements, till he reached China. A little before his arrival, he had heard of the outbreak of the war.

Vambéry who, over a half century ago, revealed fanatical Bokhara, would today, were he living, see much of the old as well as the new in that famous capital. The people are the most faithful of Mohammedans. They crowd the mosques, fashion their attire and habits upon the injunctions of the Koran, and buy almost no Western commodities, though their wonderful silks, carpets, and pottery are sold in Paris and London. But God willed the change that the Russians brought, and so the Bokharans accept, with smiling tolerance, the Russian street-car line, the Russian banks, moving pictures, and the sewing machine. The city of Samarkand, on the other hand, is completely under Russian influence, and 25,000 Russians live there. Tashkent shows the greatest change of all. It is the capital of Russian Central Asia. The muezzins call to prayer from the towers, but the fine Russian streets, shops, and cathedrals have dwarfed the Oriental aspect of the place. It is permeated with the Russian atmosphere.

When Graham with his knapsack finally took to the road, he found trying conditions. It may be very well to lie down in the open with a waterproof to shed some of the rain, if you know where you can breakfast next morning; but settlements are far apart, and even the Kirghiz may not be seen for days. Some of Mr. Graham's pages are tinged with the discomfort he found; but suffering was not acute, he was plucky and kept on to the end.

There are over 200,000 Russians, half of them Cossacks, in the Seven Rivers Province; also, about a million wandering Kirghiz. The former Russian Government gave the colonists land, loaned them money, remitted taxes for five years, built churches and schools, and helped the pioneers in other ways. The money advanced was to be paid back to the government in ten years. Most of the country is very fertile and all branches of agriculture thrive. That part of Turkestan which includes Bokhara, Samarkand, and Tashkent had not been formally opened to Russian immigration; but thousands of Russians have moved in, as there is great demand, at good wages, for farm laborers and workers on the irrigation projects. Mr. Graham gives many details of Russia's management of its colonial enterprises; and he predicts a great future for the Seven Rivers Province and for the economic development of Turkestan.

CYRUS C. ADAMS

BARTOLD, V. V. **Rapport sur une mission scientifique au Turkestan russe en été 1916.** *Bull. Acad. Imp. des Sci.* [*de Pétrograd*], Ser. 6, 1916, No. 14, pp. 1239-1242. [In Russian.]

FRIEDERICHSEN, MAX. **Russisch-Zentralasien.** *Petermanns Mitt.*, Vol. 61, 1915, pp. 428-437 and 466-473. [An excellent summary of the geography of the region, based on the latest sources.]

FARTHER INDIA, INCLUDING BURMA

GROSLIER, GEORGE. **A l'ombre d'Angkor: Notes et impressions sur les temples inconnus de l'ancien Cambodge.** 190 pp.; map, ills. Augustin Challamel, Paris, 1916. 5 fr. 8 x 6. [The narrative of an archeological journey in Cambodia which the author was commissioned to undertake by the French government. Although this is not the first description of Angkor's remarkable ruins the book makes a strong appeal. Angkor is in the belt of the monsoon rains. River life is highly developed in Cambodia. All the environment of that region favors ease of life, a social condition which in fact the author excels in outlining.]

HARRISON, C. W. **The magic of Malaya.** ix and 240 pp.; glossary. John Lane Co., London and New York, 1916. 5s. 7½ x 5.

—— **Kandal (Kompong-Speu), Monographie de la Résidence de.** Maps. *Bull. Soc. des Études Indochinoises de Saigon No. 68,* 1916-17, pp. 213-256. Saigon. [The Residency is an area of 3,500 square miles in the center of Cambodia.]

Le Cadet, G. **Régime pluvométrique de l'Indochine.** 34 pp.; maps, diagrs. Observatoire Central de l'Indochine, Phu-Lien, 1916.

Parent, ——. **Monographie de la province de Kompong-Chhnang.** Map. *Bull. Soc. des Études Indochinoises de Saigon No. 66,* 1914, pp. 71-120. Saigon.

Scott, George. **The Red Karens.** *Journ. Central Asian Soc.,* Vol. 3, 1916, Parts II-III, pp. 27-39 (discussion pp. 37-39). [London.] ["The country of the Red Karens lies to the south of the Shan States, in the hills east of the Burma districts of Toungoo and Yamèthin."]

Sion, Jules. **La structure et le relief du Tonkin septentrional, d'après les travaux de Mr. Deprat.** *Ann. de Géogr.,* No. 144, Vol. 26, 1917, pp. 439-452.

AUSTRALASIA AND OCEANIA

Melanesia, Micronesia, Polynesia

Biddle, Clement. **Some Pacific Ocean islets appertaining to the United States.** Maps, ills. *Bull. Geogr. Soc. of Philadelphia,* Vol. 16, 1918, No. 3, pp. 92-100.

Blanc, ——. **Les îles Wallis: La dernière acquisition de la France dans le Pacifique.** xii and 222 pp.; map. Perrin et Cie., Paris, 1914. 3 fr. 50. 7½ x 5. [The Wallis Islands (Uvea), lying north of the Tonga Islands, passed under French protection in 1887. In 1913 the king demanded annexation by France, but this has not yet become *fait accompli.*]

Broek, A. J. P. van den. **Das Skelett eines Pĕsĕchĕm: Ein Beitrag zur Anthropologie der Papuaner von Niederländisch Südwest-Neu-Guinea.** Pp. 281-354; diagrs., ills., bibliogr. (Nova Guinea: Résultats de l'Expédition Scientifique Néerlandaise à la Nouvelle-Guinée en 1907 et 1909, sous les Auspices de Dr. H. A. Lorentz, Vol. 7, Ethnographie, Part III.) E. J. Brill, Leiden, 1918.

Brooks, C. E. **The meteorology of Ocean Island during the period 1905-1916.** *Quart. Journ. Royal Meteorol. Soc.,* No. 185, Vol. 44, 1918, pp. 50-53. London. [An island of the Gilbert and Ellice group in 0°52′ S. and 169°36′ E.]

Brown, J. MacMillan. **Raivavai and its statues.** Ills. *Journ. Polynesian Soc.,* Vol. 27, 1918, No. 2, pp. 72-77. New Plymouth, N. Z.

Churchill, William. **Sissano: Movements of migration within and through Melanesia.** 181 pp.; maps, diagrs., index. *Carnegie Inst. Publ. No. 244.* Washington, D. C., 1916. 10 x 7.

Compton, R. H. **New Caledonia and the Isle of Pines.** Ills. *Geogr. Journ.,* Vol. 49, 1917, No. 2, pp. 81-106 (discussion, pp. 103-106). [Cf. description of the island in "Nickel Deposits of the World" (reprint of the Royal Ontario Commission), Ottawa, 1917.]

Crose, W. M. **American Samoa: A general report by the Governor.** 40 pp.; bibliogr. Washington, D. C., 1916.

Daly, R. A. **Thirteen-foot model of the world's most active volcano: Faithful reproduction of the Kilauea district in Hawaii on a scale of 1 – 1500.** Ills. *Scientific American,* Vol. 118, 1918, Feb. 9, pp. 132 and 137-138. [For an article on the same model see the *Review,* Vol. 5, 1918, pp. 38-43.]

Elschner, Carl. **The Leeward Islands of the Hawaiian group: Contributions to the knowledge of the islands of Oceania.** 68 pp.; maps, diagrs., ills. Reprinted from *Sunday Advertiser,* 1915, July 4. Honolulu.

Fornander, Abraham, and T. G. Thrum. **The Hawaiian account of the formation of their islands and origin of their race, with the traditions of their migrations, etc., as gathered from original sources.** (Fornander Collection of Hawaiian Antiquities and Folk-Lore.) *Memoirs Bernice Pauahi Bishop Museum,* Vol. 4, Part III, pp. 436-609. Honolulu, 1917.

Gibbs, L. S. **A contribution to the phytogeography and flora of the Arfak Mountains, etc., Dutch N. W. New Guinea.** iv and 226 pp.; ills., bibliogr., index. Taylor & Francis, London, 1917. 12s. 6d. 10½ x 7. [Problems arising out of the author's work on the vegetation of Mt. Kinabalu, British North Borneo (cf. review in *Geogr. Rev.,* Vol. 1, 1916, p. 162) led to the expedition to the similar mountain region of northwestern Dutch New Guinea. The expedition worked through four main topographic and vegetative zones from the coast to the interior lake basins. The immediate shore line, inundated when the huge surf raised by the north monsoon beats back the waters of the flooded river, is scantily peopled by plants and man. Behind the shore is a low-lying belt of coral limestone showing evidences of recent uplift. It is covered by an unbroken, ''steamy'' forest, practically uninhabited. Beyond, the foothills and lower ranges of the Arfak Mountains show high forest of secondary associations. At 1,000 feet appear the first native houses and native cultivations. Above 7,000 feet low mountain forest prevails.]

JAGGAR, T. A. **Results of volcano study in Hawaii.** Map, diagrs. *Nature,* No. 2525, Vol. 101, 1918, March 21, pp. 54-57. [Brief review of some of the more important discoveries made during the five years that the Hawaiian Observatory has been in operation.]

JUDD, C. S. **Forestry as applied in Hawaii.** Ills. *Hawaiian Forester and Agriculturist,* Vol. 15, 1918, No. 5, pp. 117-133. Honolulu.

LA PLAGNE, LACAVE. **La Nouvelle-Calédonie.** Map, ills. *Colonies et Marine,* Vol. 2, 1918, No. 8, pp. 254-262. Paris.

MACCAUGHEY, VAUGHAN. **A survey of the Hawaiian coral reefs.** Maps. *Amer. Naturalist,* Nos. 620-621, Vol. 52, 1918, August-September, pp. 409-438.

—— **Papua. Annual report for the year 1916-17.** 76 pp.; map, ills. Parliament of the Commonwealth of Australia, [Melbourne,] 1918. [During the year a good deal of new country was visited. The most important patrol covered a section about Mt. Chapman on the frontier between British and the former German New Guinea.]

PIROUTET, MAURICE. **Les aspects du sol néo-calédonien dans leurs rapports avec la géologie de l'île.** Map. *Ann. de Géogr.,* No. 146, Vol. 27, 1918, pp. 102-114.

POWERS, SIDNEY. **Tectonic lines in the Hawaiian Islands.** Maps, ills. *Bull. Geol. Soc. of America,* Vol. 28, 1917, No. 3, pp. 501-514. [An explanation of the notable alignment and uniform spacing characteristic of the volcanoes of the Hawaiian as of other Pacific island groups.]

RIVERS, W. H. R. **The history of Melanesian society.** (Percy Sladen Trust Expedition to Melanesia.) Vol. 1: xii and 400 pp.; maps, diagrs., ills. Vol. 2: 610 pp.; index. University Press, Cambridge, 1914. $10.50 for 2 vols. 9½ x 6½.

ROCK, J. F., O. BECCARI, A. ZAHLBRUCKNER, U. MARTELLI, H. L. LYON, AND M. A. HOWE. **Palmyra Island, with a description of its flora.** 53 pp.; map, ills. *College of Hawaii Bull. No. 4.* Honolulu, 1916. [Palmyra lies about 1,000 miles south-southwest of Hawaii.]

SKEATS, E. W. **The coral-reef problem and the evidence of the Funafuti borings.** *Amer. Journ. of Sci.,* No. 266, Vol. 45, 1918, February, pp. 81-90. [The author emphasizes the importance of the positive evidence afforded by the Funafuti report (Royal Soc., London, 1904). From the evidence presented therein he concludes that the only tenable hypothesis of origin is the subsidence theory of Darwin.]

THURN, EVERARD IM. **The present state of the Pacific Islands.** *Journ. Royal Soc. of Arts,* No. 3446, Vol. 67, 1918, December 6, pp. 38-45 (discussion, pp. 43-45). London.

WOOD, H. O. **Effects in Mokuaweoweo of the eruption of 1914.** Maps, diagrs., ills. *Amer. Journ. of Sci.,* No. 245, Vol. 41, 1916, pp. 383-408. [''Mokuaweoweo is the summit crater of Mauna Loa.'']

WOOD, H. O. **On cyclical variations in eruption at Kilauea.** 59 pp.; diagrs. *2nd Rept. Hawaiian Volcano Observatory of the Massachusetts Inst. of Technology and the Hawaiian Volcano Research Assoc.* Massachusetts Inst. of Technology, Cambridge, 1917.

HUMAN GEOGRAPHY

ANTHROPOLOGY AND ETHNOLOGY

BALCH, E. S., AND E. M. BALCH. **Art and man: Comparative art studies.** 268 pp.; map, ills. Allen, Lane & Scott, Philadelphia, 1918. 10½ x 7.

Modern anthropology is essentially based on comparative studies. In all the avenues of approach to the complex science of man—somatology, linguistics, culture—use of the comparative method has brought most fruitful results. In one phase, however, it has not been adopted—in art. Yet it is here no less desirable. Thus Haddon, writing of course as an anthropologist whose training is primarily zoölogical, says: "the geographical distribution of art is as yet uninvestigated, but, with careful and capable handling, we may expect it to yield results not less interesting than those of the distribution of animals" ("Evolution in Art," 1895). In indicating the two methods of studying art as the esthetic and the scientific he suggests one of the reasons why so little has been done towards a study of comparative art. This difficulty is voiced by Mr. Balch: "Comparative art is the study of the relations of the arts of the world and can be advanced only by trained art critics who are also ethnologists." But it is rare to find the subjective and the objective viewpoints combined in one individual. Mr. Balch himself does not escape the dominance of the esthetic influence: his analysis is essentially the subjective one of the art critic, but—and here is the interest of his work to the student of the science of man—he does recognize the scope of an objective inquiry. In the chapters on the distribution of art, on local and intrusive arts, and on art and man he suggests lines along which it must proceed. The first of these chapters classifies the world's art, ancient and modern, primitive and highly developed (the connotation is the fine arts in the broadest sense), into art families according to the lines of their development, briefly examining their characteristics and distribution. The question of local and intrusive art is a phase of the great problem of the spread of culture, itself of fundamental significance to the origin and evolution of man. We need, for instance, studies of the fine arts along similar lines to the studies of cultural migrations by the Elliot Smith school. In the case of the fine arts, however, the difficulty of distinguishing the two factors that Haddon terms "the solidarity of the human race" and "ethnic idiosyncrasy" will be peculiarly great, for art is an exceedingly ancient and universal attribute of man.

HAGAR, STANSBURY. **The American zodiac.** *Amer. Anthropologist,* Vol. 19, 1917, No. 4, pp. 518-532. Washington, D. C. [The author believes in the existence of a native American zodiac showing such affinities with Oriental zodiacs as suggest pre-Columbian intercommunications between the Old and the New World.]

HUMPHREY, S. K. **Mankind: Racial values and the racial prospect.** xvi and 223 pp. Charles Scribner's Sons, New York, 1917. $1.50. 8 x 5½.

WEISGERBER, H. **Revue d'ethnographie.** *Rev. Gén. des Sci.,* Vol. 29, 1918, Nov. 30, pp. 639-649. [A review of recent progress and the present status of ethnography.]

ANTHROPOGEOGRAPHY

BIERMANN, CH. **Le cadre géographique des civilisations.** *Atti X Congr. Internaz. di Geogr., Roma, 1913,* pp. 1047-1072. Reale Società Geografica, Rome, 1915.

FISH, C. R. **The frontier a world problem.** *Wisconsin Mag. of Hist.,* Vol. 1, 1917, No. 2, pp. 121-141. Menasha. [Delivered as the annual address before the State Historical Society of Wisconsin, Oct. 25, 1917.]

LOWIE, R. H. **Culture and ethnology.** 189 pp.; bibliogr. Douglas C. McMurtrie, New York, 1917. $1.25. 7½ x 5.

SMITH, G. ELLIOT. **Ships as evidence of the migrations of early culture.** 42 pp.; bibliogr. Reprinted from *Journ. Manchester Egyptian and Oriental Soc.,* 1915-16. University Press, Manchester, 1917. [Abstracted in the *Review,* Vol. 4, 1917, pp. 63-64.]

TEGGART, F. J. **The processes of history.** ix and 162 pp. Yale University Press, New Haven, 1918. $1.25. 8 x 5. [Contains a chapter on "The Geographical Factor in History." See review of this book in the *Scottish Geogr. Mag.,* Vol. 34, 1918, p. 429.]

Note

In the review of Professor Morris Jastrow, Jr.'s, "The War and the Bagdad Railway," in the January *Review* (p. 60), the statement was made that the author "assigns Hittite to the Aryan group of languages and attributes the origin of the people to the steppes of southern Russia without presenting his proofs. The point is of sufficient importance at present to have deserved better support." Professor Jastrow calls attention to the fact that the assignment of the Hittite language to the Aryan group was based on the work of an Austrian scholar, Friedrich Hrozny (*Mitt. der Deutschen Orient Gesell. No. 56,* May, 1916), as indicated in a footnote on pp. 154-155 of Professor Jastrow's book.